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ABSTRACT

Research has found that differential attributional styles exist between depressed and nondepressed populations. Depressed (N=32) and nondepressed (N=32) undergraduate female students were selected on the basis of scores on the Beck Depression Inventory and Multiple Affect Adjective Checklist. Participants performed a key press task where the outcome was independent of their behavior and where percentage of reinforcement trials was changed over sessions. Upon task completion, questions were solicited concerning reasons for receiving reinforcements and were measured on Likert-type rating forms relating causes to attributional dimensions: (internal-external: stable-unstable: global-specific). Key press responses were also assessed to provide a behavioral measure for detecting outgoing strategies. Results indicated that the nondepressed group attributed relatively greater responsibility toward themselves for all consequences. The nondepressed group changed their pressing strategy at a significantly higher rate over trials. Analyses provide partial support for a motivational deficit model of depression. (Author/NRB)

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Attributional and Behavioral Differences between Depressed and Nondepressed Students in Judgments of Noncontingency

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PURPOSE

Kelley (1971) proposed that one purpose of the attribution process is to gain effective control of the environment. Although most of the evidence for this concept of control motivation is essentially post-hoc by design, it generally concerns biases directed toward particular attributions (Pittman & Pittman, 1980). Such studies have demonstrated that participants tended to accept more personal responsibility for success than for failure (e.g. Schlenker & Miller, 1977). Another avenue of research directed its attention toward the findings of overestimations in judgment of control over random situations as a way to demonstrate congruency with this control motivation model (e.g., Langer, 1975). Yet other interpretations that do not include the notion of control have appealed to either ego-enhancing motives (Miller & Ross, 1975) or motives to defend self-esteem (Bradley, 1978).

This latter hypothesis was suggested as a basis for explanation in a series of studies (Alloy & Abramson, 1979) which discovered that nondepressed individuals, in comparison to depressed groups, often overestimated their judgment of control and self-perception when positive outcomes were forthcoming, while underestimating their judgment of control in negative circumstances. For such a motivational explanation to exist, however, an attributional shift must have occurred within the nondepressed individuals from an internal to an external direction, i.e., blaming the aversive outcome on the environment. This consideration of attributional movement was not assessed in their experiments. Therefore, it was the purpose of this study to establish contrasting reinforcement conditions in which these motivational and attributional differences could be more directly expressed. In this manner, an extension of the Alloy and Abramson (1979) paradigm to a between and within subjects design was proposed.

Additionally, much recent evidence has accumulated for differential attributional styles to exist between depressed and nondepressed populations (Seligman, Abramson, Semmel, & Von Baeyer, 1979). Specifically, these authors found that depressives made more internal, global and stable attributions for negative consequences than nondepressives; and more external, specific and unstable attributions for positive outcomes. Based on this research, then, a pervasive attributional style difference between the 2 mood groups should be discovered when questions are asked regarding factors which influenced reinforcement.

METHOD

SUBJECTS

One hundred and seventy-eight undergraduate females at Virginia Commonwealth University in Richmond, Virginia were screened on two depression inventories (Beck Depression Inventory (BDI) Beck, 1967; and the Multiple Affect Adjective Check List (MAACL), General Form Zuckerman & Lubin; 1965) in order to qualify as paid volunteers for the experiment. Sixty-four individuals were selected on the basis of their scores and were assigned to the appropriate mood groups. Persons with BDI scores of at least nine and/or MAACL scores of fourteen or higher (minimum cutoff score for combined scales was 21) were assigned to the depressed group, while persons scoring lower than these cutoff points were assigned to the nondepressed group. The correlation between the BDI and the MAACL was $r = +.50$, $p < .0001$. Students were randomly assigned to four experimental conditions with the restriction that each condition contain equal numbers of depressed and nondepressed, i.e., eight per cell. All participants were tested by the same female undergraduate experimenter.

APPARATUS

The experiment was conducted in the psychology laboratory at Virginia Commonwealth University. A low wattage white light bulb mounted into a small steel and plastic encasing and placed on a table between participant and experimenter was used as the stimulus presentation. Light onset was controlled by solid-state programmable circuitry which was situated behind the participant. In this experimental situation, light onset was presented noncontingently by either of two alternative responses made by the participant (i.e., pressing or not pressing a telegraph key which was also wired to the switching circuitry). Three seconds was allowed for a key press response after which the circuitry would count the trial as a no press response. Electrical counters were used to collect information on frequency, type of response, and number of reinforcers delivered.

EXPERIMENTAL DESIGN

The study consisted of a 2 (Mood-depressed, nondepressed) x 2 (Initial Session - high (70%) or low (30%) reinforcement density) concluding Session - high (70%) or low (30%) reinforcement) mixed ANOVA design. This design provides each of the 64 individuals the opportunity to participate in one of four conditions with each condition constituting one of two possible reinforcement sessions, creating eight placements or cells (See Table 1 for assignment of students). The four conditions differed in frequency of reinforcement (% of light onset) and outcome valence (winning money), but remained identical in degree of object control (0%). As defined in the Alloy and Abramson (1979) paradigm, the degree of control was determined by the difference in % of reinforcement between alternative responses, i.e., pressing or not pressing. Thus, each individual was exposed to a noncontingent session which offered the opportunity to receive an identical specified percentage of reinforcement (either 70-70 or 30-30) by either pressing or not pressing a telegraph key.

The first number of each session (either 70 or 30) denoted the percentage of trials on which the outcome of interest (light onset) occurred when the key was pressed. The second number denoted the percentage of trials on which light onset occurred when the key was not pressed.

Two conditions consisting of the two possible levels of reinforcement (70% or 30%) remained the same across the initial and concluding sessions (control groups), while the other two switched levels of reinforcement between sessions. In Condition 1 (high density across sessions), 0% control was offered with 70% reinforcement (light onset associated with 5¢) being produced either by pressing or not pressing a telegraph key. In Condition 2 (transition, high to low density), the sessions were switched from a non-contingent, 30% reinforcement event (light onset produced for alternative responses 30% of the time). Condition 3 contained the opposite of Condition 2 (i.e., transition low to high density), while Condition 4 had a low percentage of reinforcement across sessions.

DEPENDENT MEASURES

After completion of the 2 reinforcement sessions (80 trials), questions were asked concerning the reasons students gave for receiving reinforcements. These were measured on seven-point Likert-type rating forms relating the causes to the six attributional dimensions (internal-external; stable-unstable; global-specific) that were considered in the attributional style research (Seligman, et. al., 1979). All questions were presented in the form of strongly-agree-strongly disagree dichotomies. Key press responses were also assessed to provide a behavioral measure for detecting ongoing strategies involved in the perception of estimating control in the task.

RESULTS

2 (Mood) x 4 (Condition) analyses of variance on each of the six attribution questions revealed a single main effect for mood in the first question, which was concerned with personal causation for outcome ($F=(1,55)$, 4.80, $p<.03$). In this instance, the nondepressed group attributed greater responsibility toward themselves for all consequences in comparison to the depressed participants. Although the means in the other five questions were in the predicted direction of a disparate attributional style between the two populations, these did not reach a significant level (See Table 2). Additionally, since no interactions were discovered no support was offered for a differential motivation to exist for protecting self-esteem.

A Mood x Reinforcement ANOVA with repeated measures on the reinforcement factor for total pressing change yielded a single main effect between groups for reinforcement level after exposure to the first session of 40 trials, $F(1,55)=4.89$, $p<.03$; and an interaction concerning change in pressing frequency across sessions within the two designated mood groups, $F(1,55)=6.71$, $p<.01$. Post hoc Tukey analyses demonstrated that during the initial session, the participants exposed to the higher percentage of reinforcement chose to press the telegraph key more often than the individuals in the lower reinforcement condition ($p<.05$). More importantly, these analyses found that the nondepressed group changed their pressing strategies at a significantly high rate across session ($p<.05$) This strategy change (as can be seen in Figure 1) was in a decreasing direction. In comparison, the depressed group did not switch responding style over time.

IMPLICATIONS

The findings of the present study revealed partial support for the predictions of a control motivation model and pervasive attributional style difference between the two mood groups. Relative to depressed students, nondepressed students were more willing to accept personal reasons regardless of the varied consequences. Perhaps the introduction of all noncontingent, but positive outcome did not produce enough of an aversive experience to detect differences in self-esteem biases.

These results, however, did suggest an important relationship that may exist between attributions and behavior. Not only did the nondepressed students press at a higher frequency during the first session, but were willing to explore alternative strategies (i.e., take personal responsibility) in order to seek maximum monetary gain or solve the contingency problem. This evidence for the nondepressed group to accept more personal responsibility for the results, as reflected by the attributional questionnaire and behavioral measure, indicates that they are also more active and invest a greater degree of involvement in problem-solving tasks. This supports the position that depressed individuals suffer a motivational deficit. Therefore, future research should focus more on differences between the two mood populations in cognitive and behavioral activity.

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Figure 1

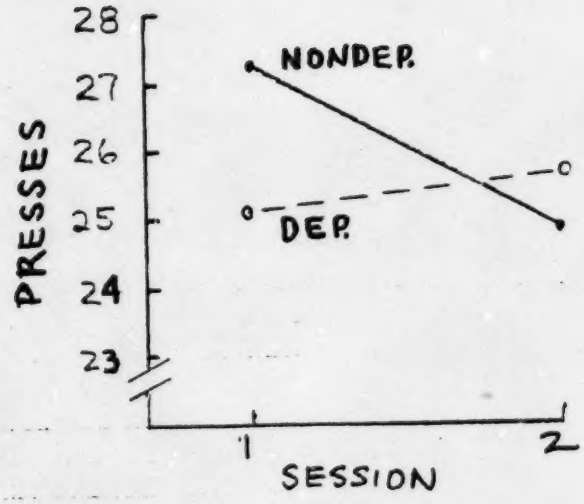

TABLE 1

Condition	Reinforcement Percentage	Number
1	70-70/70-70	16
2	70-70/30-30	16
3	30-30/70-70	16
4	30-30/30-30	16
	Total # of S's	64
	S's = Females	
	Nondepressed = 32	
	Depressed = 32	

70-70 = 0% Objective degree of control (70 = Key press with light onset set at 70%)
(70 = No key press with light onset set at 70%)
30-30 - 0% Objective degree of control (30 = Key press with light onset set at 30%)
(30 = No key press with light onset set at 30%)

Sessions = 2 at 40 trials per session

TABLE 2

Results of ANOVA (Mood factor) to Post Attribution Questionnaire

1. The onset of the light and winning money was caused by personal factors (such as ability, personality, behaviors performed).

   $F = 4.87$ p .03
   $\bar{x}$ nondepressed = 4.06 $\bar{x}$ depressed = 5.16

2. The onset of the light and winning money was caused by factors created by other persons or circumstances (experimental situation, experimenter's behavior, difficulty of the problem).

   $F = 1.79$ p .19
   $\bar{x}$ nondepressed = 4.13 $\bar{x}$ depressed - -= 3.44

3. The causes that influenced turning on the light and winning money will always be present (at other times in the future).

   $F = 1.38$ p .24
   $\bar{x}$ nondepressed = 3.19 $\bar{x}$ depressed = 3.69

4. The causes that influenced turning on the light and winning money will never again be present (will not be there in the future).

   $F = 1.54$ p .22
   $\bar{x}$ nondepressed = 6.0 $\bar{x}$ depressed = 5.5

5. The causes that influenced turning on the light and winning money influences all situations in my life (everyday events, such as school or dating).

   $F = .03$ p .86
   $\bar{x}$ nondepressed = 4.66 $\bar{x}$ depressed = 3.69

6. The causes that influenced turning on the light and winning money only influences this particular situation.

   $F = .40$ p .53
   $\bar{x}$ nondepressed = 4.00 $\bar{x}$ depressed = 3.69

1 = strongly agree
7 = strongly disagree